Acumen Electronics Ltd
15 Glenmore Bus Pk
Colebrook Way
Andover
Hants
SP10 3GQ
UK

Tel; +44 (0)1264 359922
Fax; +44 (0)1264 359933
www.acumen-electronics.co.uk

Acumen SP500 Universal Speedo

The speedometer is designed as a universal fit.
You will need to perform some slight assembly on it, to suit your own individual requirements.

The Acumen Universal Speedometer consists of;

1. A Speedometer head sub-assembly. – without fascia
2. Electronic pick-up for the speedometer
3. Fitting and Literature kit.

Fitting instructions

Speedometer

The SP500 speedometer has 5 warning lights built into the system. These are all white LED's so you can identify the LED's with the coloured icons provided. The Icons are EC standard icons.

Of the 5 Indicator LED's, two need to be switched to ground (earth) to illuminate – such as for oil pressure or Neutral light, and three need to be switched to 12V to illuminate – such as for indicators, main beam or lights-on.

The drawing below will indicate how the warning lights are switched.

NOTE. Acumen recommend you use one of the LED lights as a 'lights-on' indication. As the Speedometer is permanently illuminated, there is no 'lights-on' indication.
Some countries may require to use such an indicator if the motorcycle lights can be switched off and on.

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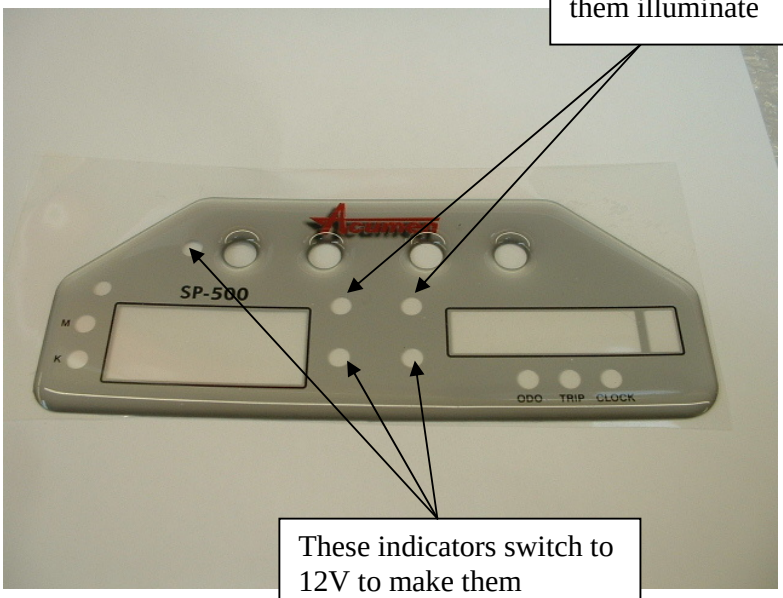


These indicators switch to ground/earth to make them illuminate

These indicators switch to 12V to make them illuminate

NOTE!

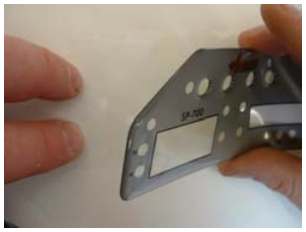
The five indicator LED's for;

M (miles)
K (Kilometers)
ODO
TRIP
CLOCK

Are all pre-coloured.

When you have decided which indicator does what, use the pre-coloured icons to indicate the purpose of the indicator. Cut the icon from the sheet and place it on the fascia – by carefully removing the fascia from the Acetate sheet – do not touch the adhesive with your bare hands!

1; Ease the fascia away from the acetate sheet



2; Place the chosen icon on the acetate sheet

3; Replace the fascia on the acetate sheet over the chosen icon – the Icon will adhere to the adhesive on the rear of the fascia.

Repeat for all other Icons

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Speedo and Trip display filter

The LED's for the Speedometer and the Trip/ODO/Clock are Red in the standard version and White in the Special Version. Either version will need some filtration added to enhance the contrast and, therefore, the 'viewability' of the display. Acumen has included a selection of filters in the kit for this purpose. We recommend you try the filters before adding the fascia – then cut the chosen filter to slightly larger than the chosen display window and stick to the fascia.

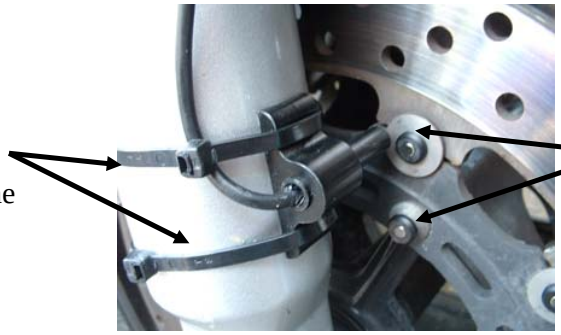
RED Led indication. – Use the Red or Dark Grey filters

WHITE Led indication – use any filter. Other colours are available from most good photographic shops or contact Acumen direct.

Fitting the speedo reader head

The speedo reader head can be fitted to either the front or rear wheel – it doesn't matter which. You will need to fit the magnet into a suitable receptacle – we recommend fitting the magnet within the plastic holder and put the plastic into a disc bolt head – us a 'superglue' for added security.
The speedo reader head mounts inside the self-adhesive block. Adjust the position of the head so it is within 5 – 15 mm of the magnet, and tighten the grub screw – nipped-up only! Do not over-tighten.
The adhesive on the mounting block will cure over time – we suggest you mount it using two long cable ties for at least 24 hours until the adhesive cures.

Cable ties added to assist the adhesive during the curing time



Magnet and holder shown mounted in either position.

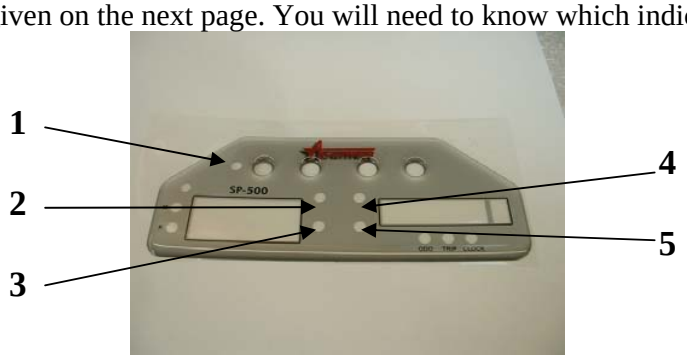
For electrical connection instructions see the listing on page 4.

Wiring the Speedometer

The speedometer is designed to work from a 12Vdc power supply, negative ground/earth.

The speedometer has a flying lead on it with a 9-way connector and the mating part of the connector is supplied in the kit. Splice the wires from the mating connector into the motorcycle wiring harness as appropriate.

Wire colour/purpose is given on the next page. You will need to know which indicator LED is where!



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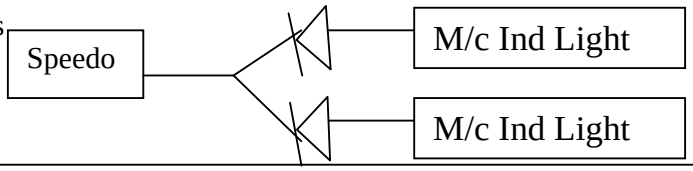
Electrical Connections

Speedometer Wire Colour	*Purpose*
Red/Black	Ignition – a circuit which has 12V when the ignition is switched on AND also connect to the Red wire of the Speedo reader
Red	12V – permanent power supply
Black/Green	LED Indicator number 2 – switches to ground/earth/0V
White	LED Indicator number 3 – switches to 12V
Black	Ground/earth AND also connect to the Green wire of the Speedo reader
Blue	LED Indicator number 5 – switches to 12V
Yellow	Speedometer signal – connect to the BLUE wire of the Speedo head reader
Blue/Black	LED Indicator number 4 – switches to ground/earth/0V
Green	LED Indicator number 1 – switches to 12V

NOTE! If you are using one 12V switched for both the left and right m/c indicator lights you will need to fit two diodes in the circuit thus;

Diodes are available from Acumen Electronics Free of Charge on Request – or from any Electronics stockist.



Using it
Knowing the controls

MOD Button
The **MODE** Button –
This changes from ODO to TRIP to CLOCK and also sets the speedometer ratio

INC button
As the name suggests;
It increases values of the Trip or Clock or Speedo ratio

DEC button
As the name suggests;
It decreases values of the Trip or Clock or Speedo ratio

UNIT button
As the name suggests;
It changes the Speedo, trip and ODO from Miles to Kilometers and vice/versa

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Calibrating the Speedo to your motorcycle –
The speedo needs to let you know, accurately, what speed you are doing and what distance you have done. You therefore need to enter a calibration code.

To do this, look at the attached chart which will give you a code dependent upon the tyre size that the speedo reader head is mounted on. The chart will give you a code – 01, 02, 03.

To enter calibration mode;

Hold down the MOD button and THEN turn on the ignition. The speedo will show all "8's" as it goes through it's lamp-test cycle, then will default to a flashing '01'. Using the INC and DEC buttons find which code you need for the tyre size, then turn the ignition off. The 12V permanent power MUST be maintained for at least 2 seconds after this operation or the unit will always default to a ratio of '01'.

Other Interesting/Technical Stuff!

Odo and Trip.

These two displays will show miles or kilometres; Miles when the Units are in miles, and Kilometres when the units are in kilometres. They will re-calculate automatically to suit the speedo setting..

The ODO illuminates all the digits – leading zero's if need be, eg 02497.5, while the TRIP does not have leading zero's, eg 2497.5

When in TRIP mode the INC button will increase it's value and the DEC button will decrease it's value. You can increase or decrease the value by increments of 0.1, and if you hold the relevant button down, the alteration will get faster and faster.

Clock

To set the clock; **(note! The clock is 24 hour format)**
Hold down the INC and DEC buttons together for around 5 seconds, until display changes to all zeros.
Use the INC button to add time and the DEC button to lose time.
Holding either button down will alter the clock at a quicker and quicker rate.
Touching the relevant button momentarily will alter the clock by one minute at a time – and also clears the underlying seconds to accurately set the clock.
To end set-up press the MOD button.

If during clock set-up you;
Don't do anything in set-up mode for two minutes; or
Scroll through the MOD button; or
You turn off the ignition
The set-up mode is exited.

If the permanent 12V is removed, the clock will, after a period of about 10 minutes, lose it's time and need to be reset. It will start up at 00-00.

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Speedo Calibration Code

Tyre Type	Size	Speedo Calibration Code
15” Road		
	140/90	3
	150/90	3
	170/80	3
	200/70	3
16” Road		
	350-16	3
	500-16	1
	100/80	2
	100/90	2
	110/90	3
	120/80	3
	120/80	3
	130/70	2
	130/90	3
	140/80	3
	140/90	3
	150/80	3
	160/80	3
	180/60	3
	200/60	3
	MT90B16	3
	MT90-16	3
17” Road		
	325-17	3
	350-17	3
	110/70	2
	110/80	3
	120/60	2
	120/70	3
	130/70	3
	130/80	3
	130/90	1
	140/80	3
	150/60	3
	150/70	3
	150/80	1
	160/60	3
	160/70	3
	160/70	3
	170/60	3
	180/55	3
	190/50	3
	200/50	3

Tyre Type	Size	Speedo Calibration Code
18” Road		
	350-18	3
	400-18	1
	90/90	3
	100/90	3
	110/80	3
	110/90	3
	120/70	3
	120/90	1
	130/70	3
	130/80	1
	140/70	3
	150/70	3
	160/60	3
	180/55	1
	200/55	1
	250/40	3
19” Road		
	300-19	3
	325-19	3
	350-19	1
	400-19	1
	410-19	1
	90/90	3
	100/90	3
	110/90	1
	120/70	3
20” Road		
	300-20	1
21” Road		
	300-21	1
	80/90	1
	90/90	1
	120/70	1
	MH90	1
16” Racing		
	120/70	2
	140/80	3
17” Racing		
	120/70	3
	160/60	3
	180/55	3

Tyre Type	Size	Speedo Calibration Code
18” Racing		
	80/90	3
	90/90	3
	100/90	3
	110/80	3
	110/90	1
	130/65	3
	130/70	3
	150/70	3
	180/55	1
19” Racing		
	275/300	3
	325	3
	350	1
	90/90	3
	100/90	1
	120/80	3
20” Racing		
	300	1
21” Racing		
	300	1
17” Dual Sport		
	120/70	3
	120/90	3
	130/80	3
	140/80	3
	150/60	3
	150/70	3
	160/60	3
18” Dual Sport		
	400	1
	410	3
	460	1
	110/80	3
	120/80	1
	120/80	1
19” Dual Sport		
	100/90	1
	110/80	1
21” Dual Sport		
	300	1
	90/90	1
	80/90	1
	90/90	1

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